



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/021,736

10/30/2001

Malcolm Whitlock

72404

1061

22242

7590

03/09/2005

FITCH EVEN TABIN AND FLANNERY  
120 SOUTH LA SALLE STREET  
SUITE 1600  
CHICAGO, IL 60603-3406

EXAMINER

MEEK, JACOB M

ART UNIT

PAPER NUMBER

2637

DATE MAILED: 03/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/021,736	WHITLOCK, MALCOLM	
	<b>Examiner</b>	<b>Art Unit</b>	
	Jacob Meek	2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1 - 17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 - 4, 7 - 12, 14, 15 is/are rejected.
- 7) ☒ Claim(s) 5, 6, 13, 16, 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Priority*

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in United States on 10/30/2001. It is noted, however, that applicant has not filed a certified copy of the United Kingdom application as required by 35 U.S.C. 119(b).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 7, 8, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by März (US Patent 5,923,706).

With regard to claim 1, März discloses a method for measuring jitter in a digital signal (see column 1, lines 6 - 8) comprising producing a digital reference signal having a predetermined frequency offset from digital input signal (see column 1, line 59 – column 2, line 4) detecting a 1<sup>st</sup> occurrence of phase relationship between digital input signal and digital reference signal (see column 2, lines 5 – 16 where this is interpreted as equivalent), detecting subsequent occurrence of predetermined phase relationship between digital input signal and

digital reference signal (see column 2, lines 17 – 29), determining time difference between 1<sup>st</sup> and subsequent occurrence to determine a measurement of jitter present in digital input signal (see column 2, lines 39 – 58).

With regard to claim 2, März discloses a method of producing a digital reference signal comprising measuring frequency of digital input signal to produce a frequency measurement (see column 6, lines 20 – 30), and using frequency measurement to produce digital reference signal having a frequency which is offset by a predetermined amount (see column 6, lines 31 – 47 where this is interpreted as equivalent).

With regard to claims 7 and 8, März discloses an apparatus incorporating the steps claimed as method in claims 1 and 2 respectively and therefore, it would have been obvious considering the aforementioned rejection of method claims of 1 and 2.

With regard to claim 15, März discloses the apparatus is arranged to sense jitter in a telecommunications PCM signal (see column 1, lines 6 – 8 where this is interpreted as being inclusive of telecommunications PCM signals).

3. Claims 1 – 4, 7 - 12, 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Naudet (US Patent 6,377,644).

With regard to claim 1, Naudet discloses a method for measuring jitter in a digital signal (see column 1, lines 5 - 9) comprising producing a digital reference signal having a predetermined frequency offset from digital input signal (see column 1, lines 63 – 65), detecting a 1<sup>st</sup> occurrence of phase relationship between digital input signal and digital reference signal (see column 3, lines 62 – column 4, line 1 where this is interpreted as equivalent), detecting subsequent occurrence of predetermined phase relationship between digital input signal and digital reference signal (see column 4, lines 1 – 10), determining time

difference between 1<sup>st</sup> and subsequent occurrence to determine a measurement of jitter present in digital input signal (see column 4, lines 64 – 67).

With regard to claim 2, Naudet discloses a method of producing a digital reference signal comprising measuring frequency of digital input signal to produce a frequency measurement (see column 6, lines 20 – 30), and using frequency measurement to produce digital reference signal having a frequency which is offset by a predetermined amount (see column 6, lines 31 – 47 where this is interpreted as equivalent).

With regard to claim 3, Naudet discloses a method of detecting a 1<sup>st</sup> occurrence of a predetermined phase relationship between digital input signal and digital reference signal (see column 5, lines 1 – 14 where this is interpreted as equivalent) and the step of detecting subsequent occurrence of predetermined phase relationship between digital input signal and digital reference signal comprise detecting coincidence of similar edges of digital input signal and digital reference signal (see column 5, lines 6 – 28).

With regard to claim 4, Naudet discloses a method of detecting subsequent occurrence of predetermined phase relationship between digital input signal and digital reference signal comprises detecting over a plurality of subsequent occurrences a maximum time difference value and a minimum time difference value (see column 5, lines 15 – 28 where this is interpreted as being inclusive) and determining from maximum time difference value and minimum time difference value a total peak to peak jitter measurement (see column 5, lines 49 – 59 where calculation is interpreted as being inclusive of peak-peak measurement).

With regard to claims 7, 8, 11, 12 Naudet discloses an apparatus incorporating the steps claimed as method in claims 1 – 4 respectively and therefore, it would have been obvious considering the aforementioned rejection of method claims of 1 – 4.

With regard to claim 9, Naudet discloses an apparatus wherein measuring arrangement compromises a frequency counter (see Figure 6, 3 & 4 and column 6, lines 59 – 67).

With regard to claim 10, Naudet discloses an apparatus wherein signal producing arrangement compromises a programmable oscillator (see column 6, lines 38 – 47 where this is interpreted as equivalent).

With regard to claim 15, Naudet discloses the apparatus is arranged to sense jitter in a telecommunications PCM signal (see column 1, lines 5 – 9 where this is interpreted as being inclusive of telecommunications PCM signals).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Naudet ('644).

With regard to claim 14, Naudet discloses a digital measurement device. Naudet is silent with respect to his apparatus being implemented in an FPGA. It would have been obvious to one of ordinary skill of the art at the time of invention the digital measurement device could be implemented in an FPGA as this represents one of commonly used digital design devices (PAL, ASIC, FPGA, etc).

***Allowable Subject Matter***

5. Claims 5, 6, 13,16, and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Other Cited Prior Art***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shohet (US Patent 4,975,634), Hayashi (US Patent 5,293,520), Ujiie (US Patent 5,557,196), Yamaguchi et al (US Patent 6,460,001), Kattan (US Patent 6,621,767) all teach digital jitter measurement techniques that appear germane to applicant's invention. Guo (US Patent 5,400,370) and Kuglin (US Patent 6,246,737) teach digital time measurement and adjustment techniques associated with area of invention but not specific to jitter measurement. NPL documents provide insight into digital measurement techniques.

***Conclusion***

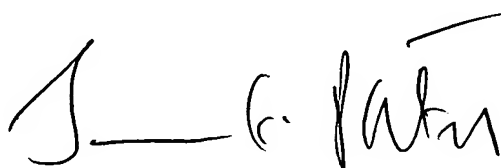
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacob Meek whose telephone number is (571)272-3013. The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571)272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2637

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMM

A handwritten signature in black ink, appearing to read "J. K. Patel", with a long horizontal stroke extending to the left.

JAY K. PATEL  
SUPERVISORY PATENT EXAMINER